

Clean Version of Claims:

6. ~~8.~~ A switch matrix, comprising:

a plurality of row conductors;

a plurality of column conductors, each of said plurality of row conductors and each of said plurality of column conductors are capable of being driven with a predetermined voltage level, and being capable of being read therefrom a voltage level; and

a plurality of switching elements including at least one momentary push button adapted to connect at least one of said plurality of row conductors to at least one of said plurality of column conductors;

wherein a total number of switching elements of said plurality of switching elements exceeds a product of a total number of row conductors of said plurality of row conductors and a total number of column conductors of said plurality of column conductors.

8. ~~14.~~ A switch matrix, comprising:

a plurality of row conductors;

a plurality of column conductors;

a plurality of momentary switching elements adapted to momentarily connect at least one of said plurality of row conductors to at least one of said plurality of column conductors; and

a plurality of persistent switching elements adapted to persistently connect at least one of said plurality of row conductors to at least one of said plurality of column conductors;

wherein a total of said plurality of momentary switching elements and said plurality of persistent switching elements exceed a number obtained by multiplying together a number of said plurality of row conductors and a number of said plurality of column conductors.

10 16. A method of scanning a switch matrix, comprising:

persistently connecting at least one of a plurality of row conductors to at least one of a plurality of column conductors;

driving one at a time each of said plurality of row conductors with a predetermined row voltage level;

monitoring each of said plurality of column conductors while one of said plurality of row conductors is being driven with said predetermined row voltage level;

driving one at a time each of said plurality of column conductors with a predetermined column voltage level; and

monitoring each of said plurality of row conductors while one of said plurality of column conductors is being driven with said predetermined column voltage level;

wherein a number of switches is increased by said persistent connection exceeding a total number obtained by multiplying together a number of said plurality of row conductors and a number of said plurality of column conductors.